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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,152	06/08/2005	Marie-Catherine Fritsch	2002P18325WOUS	3257
7590 Siemens Corporatio Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830			EXAMINER SINGH, HIRDEPAL	
			ART UNIT 2609	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,152	<b>Applicant(s)</b> FRITSCH ET AL.	
	<b>Examiner</b> Hirdepal Singh	<b>Art Unit</b> 2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 13, 17, 19, 23, 26, 29, 31, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13, 17, 19, 23, 26, 29, 31, 33, and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This action is in response to the amendment filed on May 02, 2007. Claims 13, 17, 19, 26, and 29, are amended, claims 14-16, 18, 20-22, 24-25, 27-28, 30, and 32 are cancelled, and claims 33-34 are newly added. Now claims 13, 17, 19, 23, 26, 29, 31, and 33-34 are pending in the application and have been considered below.

#### ***Specification***

The objections to the specification are corrected by the amendment, so the objections are withdrawn.

#### ***Double Patenting***

The amendment canceled the claim 32, which was rejected as being a substantial duplicate of an independent claim based on double patenting, so the rejection is withdrawn.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2609

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13, 17, 19, 23, 26, 29, 31, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess (US 5,805,896) in view of Sakurai et al. (US 6,334,076) further in view of Elmqvist ("A Uniform Architecture for distributed automation", Advances in Instrumentation and Control, Instrument Society of America, Research Triangle Park, NC US, Vol. 46, Part 2, 1991; Pages, 1599-1608).

Claims 13, and 26: Burgess discloses a system and method for producing software/code using links of the components of the system (summary of the invention), but doesn't explicitly disclose that the code generation is for a manufacturing and/or processing plants. Examiner notes that this is just an intended use, therefore little if any patentable weight is given. However, Sakurai discloses a similar system and method for automatically generating a control program/code for plants such as rolling plants, power plants, and chemical plants (abstract, technical field). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the disclosed system for code generation in Burgess in a manufacturing and/or processing plant. One would have been motivated to generate automation code for controlling a manufacturing and/or process plant to allow a person with no programming knowledge to generate the code, and to make system capable of checking and modifying the function of automatically generated code.

a. Burgess discloses that the components have input and output ports, represented by corresponding symbols/functional blocks/modules (column 1, lines 45-64; column 2, lines 65-67; column 3, lines 1-19), but doesn't explicitly disclose that the components are described in drawing comprising control relevant information based on material flow in the manufacturing and/or processing plant. However, Sakurai discloses a similar system and method for automatically generating a control program/code for plants such as rolling plants, power plants, and chemical plants as above, and further discloses that the components of the system are represented by functional modules in form of drawings or pictures or graphics based on the control relevant information i.e. operation procedure, and the system is controlled by modifying the drawings or graphics or pictures of the described component modules (column 2, lines 20-51). Burgess and Sakurai don't explicitly disclose that the control information described in the drawing is based on the material flow in the manufacturing and/or processing plant. However, Elmqvist discloses a similar system and method for distributed automation with a graphical programming environment for programming/software generation by graphically connecting the predefined modules (abstract, page 1599; paragraph 4, page 1600), and further discloses that the control information in drawing or graphic is based on the physical objects present in the processing or manufacturing plant as pumps, pump stations, robots, roller tables etc. (paragraph; Object and data flow based language, page 1600). This is inherent that the physical objects of the plant form the path for material or fluid flow as shown in the example of tank system (figures 1-5) i.e. the system is controlling the process based on the material or fluid flow through the

Art Unit: 2609

tanks, PID (process identifier) controllers, valves, and pumps (Tank system, page 1601). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a drawing or picture or graphic having control relevant information based on material flow in a plant for code generation in Burgess. One would have been motivated to combine the graphically represented components i.e. a drawing based on material flow in a plant of Elmqvist for code generation to help make use of the standard designing tools;

b. Burgess further discloses that the components are connected through their ports, direction of the connection is indicated between input and output ports (column 3, lines 29-34, lines 54-57; column 4, lines 1-16);

c. Burgess further discloses sending messages between the components through the ports and the data is being transferred between the components (column 2, lines 23-30), therefore it is inherent that the message transfer is taking place as signals through the ports;

d. Burgess further discloses that the event objects include message information describing the message i.e. information about information, and the derived class provides behavior specific to a type of message i.e. message is the information and type of message is metainformation i.e. information about information (column 2, lines 23-40), also the system components are sending and receiving the temperature data and also converting from one scale to another i.e. Fahrenheit to Centigrade and vice versa (figures 4-7; column 3, lines 20-58), in this case the temperature data is the

Art Unit: 2609

information and the information whether the temperature scale in Fahrenheit or Centigrade is metainformation i.e. information about information;

e. Burgess further discloses that producing a program code by interconnecting the signals based on the directed connections of the components (column 4, lines 35-50; producing a class is referred to as a program code).

Claims 17, and 29: Burgess, Sakurai, and Elmqvist disclose a system and method for producing code using links of the components of the system as in claims 13, and 26 above, and Burgess further discloses input device/means for inputting relevant information for producing software code (column 14, lines 12-18; fig 9).

Claim 19: Burgess, Sakurai, and Elmqvist disclose a system and method for producing a software code for a manufacturing and/or processing plant as in claim 13 above, and Elmqvist further discloses the method for distributed automation with graphical connection represent information flow, and a data flow model (page 1601, paragraph 4; page 1605, paragraph 10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the material flow, and/or energy flow, and/or information flow as a basis for mapping the directed relationships between the components in Burgess. One would have been motivated to use the material flow, and/or energy flow, and/or information flow as a basis for mapping the directed relationships between the components to make the automation code more

Art Unit: 2609

effective and error free as the manufacturing and/or processing plant layout and planning is according to the material flow, and/or energy flow, and/or information flow.

Claims 23, and 31: Burgess, Sakurai, and Elmqvist disclose a system and method for producing a software code as in claims 13, and 26 above, and Elmqvist further discloses that the system and method is for distributed automation with automated cooperation for distributed objects (page 1599, abstract paragraph 2; page 1605, paragraph 5), but doesn't explicitly disclose that the system could be a central system. However, official notice is taken that it is old and well known within the computer art that if automated code generation is used for distributed system then it could be used for central system too. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the disclosed system in Burgess for central and/or distributed solutions. One would have been motivated to use the disclosed system for central and/or distributed solutions to control the distributed components with a central controller or to control the components with a central controller as required.

Claim 33: Burgess discloses a system and method for producing software/code using links of the components of the system (summary of the invention), but doesn't explicitly disclose that the code generation is for a manufacturing and/or processing plants.

Examiner notes that this is just an intended use, therefore little if any patentable weight is given. However, Sakurai discloses a similar system and method for automatically



Art Unit: 2609

generating a control program/code for plants such as rolling plants, power plants, and chemical plants (abstract, technical field). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the disclosed system for code generation in Burgess in a manufacturing and/or processing plant. One would have been motivated to generate automation code for controlling a manufacturing and/or process plant to allow a person with no programming knowledge to generate the code, and to make system capable of checking and modifying the function of automatically generated code.

a. Burgess discloses that the components of the system have input and output ports for data or message communication (column 1, lines 45-64; column 2, lines 65-67; column 3, lines 1-19), but doesn't explicitly disclose that the described components of the plant comprising function module and the function module being a reusable software object that defines characteristics and functions of the elements of the plant. However, Sakurai discloses a similar system and method for automatically generating a control program/code for plants such as rolling plants, power plants, and chemical plants as above, and further discloses that the components of the system are represented by functional modules, and the function modules are reusable or the combination of modules is selected according to the operation and procedure of the plant (column 2, lines 20-51). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the function module of the components of plant with connections for communication, as reusable software object for code generation in Burgess. One would have been motivated to combine the function module

Art Unit: 2609

as reusable software code, defining functions and characteristics of elements of the plant for code generation to help make use of the standard designing tools;

b. Burgess further discloses that the components are connected through their ports for communicating or sending/receiving messages i.e. a communication network between the components of the system, and a controller i.e. a class object controls the communication of messages between the components (column 4, lines 1-50);

c. Burgess further discloses that the components have input and output ports, represented by corresponding symbols/functional blocks/modules (column 1, lines 45-64; column 2, lines 65-67; column 3, lines 1-19), and the components are connected through their ports, direction of the connection is indicated between input and output ports (column 3, lines 29-34, lines 54-57; column 4, lines 1-16), but doesn't explicitly disclose that the components are described in drawing comprising control relevant information based on material flow in the manufacturing and/or processing plant.

However, Sakurai discloses a similar system and method for automatically generating a control program/code for plants such as rolling plants, power plants, and chemical plants as above, and further discloses that the components of the system are represented by functional modules in form of drawings or pictures or graphics based on the control relevant information i.e. operation procedure, and the system is controlled by modifying the drawings or graphics or pictures of the described component modules (column 2, lines 20-51). Burgess and Sakurai don't explicitly disclose that the control information described in the drawing is based on the material flow in the manufacturing and/or processing plant. However, Elmqvist discloses a similar system and method for

Art Unit: 2609

distributed automation with a graphical programming environment for software generation by graphically connecting the predefined modules (abstract, page 1599; paragraph 4, page 1600), and further discloses that the control information in drawing or graphic is based on the physical objects present in the processing or manufacturing plant as pumps, pump stations, robots, roller tables etc. (paragraph; Object and data flow based language, page 1600). This is inherent that the physical objects of the plant form the path for material or fluid flow as shown in the example of tank system (figures 1-5) i.e. the system is controlling the process based on the material or fluid flow through the tanks, PID (process identifier) controllers, valves, and pumps (Tank system, page 1601). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a drawing or picture or graphic having control relevant information based on material flow in a plant for code generation in Burgess. One would have been motivated to combine the graphically represented components i.e. a drawing based on material flow in a plant of Elmqvist for code generation to help make use of the standard designing tools;

d. Burgess further discloses that producing a program code for the processing or manufacturing plant based on the control information flow and the directed connections of the components (column 4, lines 35-50; producing a class is referred to as a program code).

Claim 34: Burgess, Sakurai, and Elmqvist disclose a system and method for producing a software code as in claim 33 above, and Elmqvist further discloses that the control

Art Unit: 2609

system comprises different zones with subsets of plant elements i.e. the tank system with tank 1, PID 1 is a control zone with PID, valve as subset of elements of system, and PID controller work as the control coordinator as shown in the topology of the network of the system (figures 1-3; pages 1602-1603). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the software code generation of Burgess in a system with different control zones with plant elements including controllers. One would have been motivated to implement the generated code in a system with different control zones including plant elements and controllers to make all different components of system work in coordination for optimum results and control.

### ***Response to Arguments***

3. Applicant's arguments filed May 02, 2007 have been fully considered but they are not persuasive.

a. Applicant argues that the amendment overcomes the rejection under 35 U.S.C. 102 to claims 13, and 33 as they recite a limitation that the automation code is generated for a manufacturing and/or processing plant. However, in the previous office action this limitation in a dependent claim was rejected under 35 U.S.C. 103, so based on the same reference(s) the above mentioned claims are now rejected under 35 U.S.C. 103.

Applicant's argument about metainformation is not persuasive as Burgess discloses that the event objects include message information describing the message i.e. information about information, and the derived class provides behavior specific to a type of message i.e. message is the information and type of message is metainformation i.e. information about information (column 2, lines 23-40), also the system components are sending and receiving the temperature data and also converting from one scale to another i.e. Fahrenheit to Centigrade and vice versa (figures 4-7; column 3, lines 20-58), in this case the temperature data is the information and the information whether the temperature scale in Fahrenheit or Centigrade is metainformation i.e. information about information, as explained above. Therefore, examiner believes that this rejection still holds.

b. Applicant's argument about claims 13, 26, and 33 that Elmqvist does not disclose that "description of components of plant based on material flow" is not persuasive. Elmqvist discloses a system and method for distributed automation with a graphical programming environment for programming/software generation by graphically connecting the predefined modules (abstract, page 1599; paragraph 4, page 1600), and further discloses that the control information in drawing or graphic is based on the physical objects present in the processing or manufacturing plant as pumps, pump stations, robots, roller tables etc. (paragraph; Object and data flow based language, page 1600). This is inherent that the physical objects of the plant form the path for material or fluid flow as shown in the example of tank system (figures 1-5) i.e. the system is controlling the process based on the material or fluid flow through the tanks, PID (process

Art Unit: 2609

identifier) controllers, valves, and pumps (Tank system, page 1601). Therefore examiner believes that the rejection still holds as explained above.

### ***Conclusion***

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hirdepal Singh whose telephone number is 571-270-1688. The examiner can normally be reached on Mon-Fri (Alternate Friday Off) 8:00AM-5:00PMEST.

Art Unit: 2609

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on 571-272-6722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HS  
May 21, 2007

  
James W. Myhre  
Supervisory Primary Examiner